

Application No. 10/084,925
Amendment dated June 30, 2004
Reply to Office Action of March 3, 2004

REMARKS

Claims 1-4 and 6-9 are pending in this application. Claim 1 has been herein amended. Reconsideration of the rejections in view of these amendments and the following remarks is respectfully requested.

Rejections under 35 USC §112, Second Paragraph

Claims 1-4 and 6-9 are rejected under 35 USC §112, second paragraph, as being indefinite.

Accordingly, the claims have been amended to overcome the rejection.

In the rejection, the Examiner noted that “the insulating film is only formed on the top of the P-N junction.” However, the P-type semiconductor region and the N-type semiconductor region of the P-N junction of said gate electrode are electrically insulated on all sides of the P-N junction. As shown in Fig. 3, the P-type semiconductor region and the N-type semiconductor region of the P-N junction are insulated at the bottom by the gate oxide film. The other sides are also insulated by air. The insulation can be in any form.

Thus, the invention is not indefinite in the recitation “wherein said P-type semiconductor region and said N-type semiconductor region of said P-N junction of said gate electrode are electrically insulated on all sides of said P-N junction.”

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Rejections under 35 USC §103(a)

Claims 1 and 7 were rejected under 35 USC §103(a) as being obvious over AAPA (Applicant's admitted prior art) in view of Pfiester (U.S. Patent No. 4,745,079). Claims 2 and 3 were rejected under 35 USC §103(a) as being obvious over AAPA in view of Pfiester further in view of Kakumu (U.S. Patent No. 5,466,958). Claim 6 was rejected under 35 USC §103(a) as being obvious over AAPA in view of Pfiester further in view of Matloubian (U.S. Patent No. 5,144,390). Claims 8 and 9 were rejected under 35 USC §103(a) as being obvious over AAPA in view of Pfiester and Matloubian and further in view of Cherne et al (U.S. Patent H1435).

Applicant respectfully traverses these rejections.

Admitting that AAPA does not show that "said P-type semiconductor region and said N-type semiconductor region of said P-N junction of said gate electrode are electrically insulated on all sides," the Examiner alleged that "Pfiester (figure 9) teaches the P-type semiconductor region and the N-type semiconductor region of P-N junction of the gate electrode are electrically insulated on all sides," and "it would have been obvious . . . to incorporate the teaching of Pfiester into the device taught by AAPA because it provides an insulator between the P-N junction and the external device."

In order to further clarify the present invention, claim 1 has been amended to recite, among other things, "a gate electrode provided on said gate insulating film and formed with a P-N junction including a P-type semiconductor region and an N-type semiconductor region, said P-N junction extending parallel to a source-drain direction of said source region and said drain region."

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In Pfiester, as shown in Fig. 9, the P-N junctions extend perpendicular to the source drain direction. Thus, Pfiester does not teach or suggest, among other things, "said P-N junction extending parallel to a source-drain direction of said source region and said drain region," as recited in amended claim 1.

For at least these reasons, claim 1 patentably distinguishes over AAPA and Pfiester.

Claims 2-9, depending from claim 1, also patentably distinguish over AAPA and Pfiester for at least the same reason. Kakumu Matloubian and Cherne et al are cited for allegedly disclosing the additional recitations in these dependent claims, but these cited reference do not remedy the deficiencies of AAPA and Pfiester discussed above. Therefore, claim 2-9 patentably distinguish over AAPA, Pfiester, Kakumu Matloubian and Cherne et al.

Thus, the 35 USC §103(a) rejections should be withdrawn.

It is submitted that nothing in the cited references, taken either alone or in combination, teaches or suggests all the features recited in each claim of the present invention. Thus all pending claims are in condition for allowance. Reconsideration of the rejections, withdrawal of the rejections and an early issue of a Notice of Allowance are earnestly solicited.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. The fees for such an extension or any other fees which may be due with respect to this paper, may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP



Sadao Kinashi
Attorney for Applicant
Reg. No. 48,075

SK/fs/asc
1250 Connecticut Ave. N.W.
Suite 700
Washington, D.C. 20036
(202) 822-1100

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